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1	1	Cog. Mgr. C. L. Looney	<i>[Signature]</i>	3-28-96	26				
		QA							
1	2	Safety T. C. Stone	<i>[Signature]</i>	3-1-96	10				
		Env.							
1	2	H. W. Ruby	<i>[Signature]</i>	3-1-96	57				

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HANFORD SITE INTEGRATED PEST MANAGEMENT PLAN

Ray F. Giddings

Westinghouse Hanford Company, Richland, WA 99352

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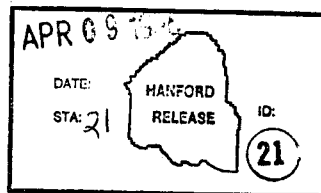
Abstract: The Hanford Site Integrated Pest Management Plan (HSIPMP) defines the Integrated Pest Management (IPM) decision process and subsequent strategies by which pest problems are to be solved at all Hanford Site properties per DOE-RL Site Infra Structure Division memo (WHC 9505090). The HSIPMP defines the roles that contractor organizations play in supporting the IPM process. In short the IPM process anticipates and prevents pest activity and infestation by combining several strategies to achieve long-term pest control solutions.

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Hanford Site Integrated Pest Management Plan

R. F. Giddings

March 1996

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ABSTRACT

The Hanford Site Integrated Pest Management Plan (HSIPMP) defines the Integrated pest Management (IPM) decision process and subsequent strategies by which pest problems are to be solved at all Hanford Site Properties by which pest problems are to be solved at all Hanford Site properties per DOE-RL Site Infra Structure Division memo (WHC 9505090). The HSIPMP defines the roles that contractor organizations play in supporting the IPM process. In short, the IPM process anticipates and prevents pest activities and infestation by combining several strategies to achieve long-term pest control solutions.

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LIST OF TERMS

ACO	Animal Control Operations
CPA	Commercial Pesticide Applicator
CPO	Commercial Pesticide Operations
DOE	Department of Energy
EES	Environmental Engineering Studies
EPA	U.S. Environmental Protection Agency
GC	General Counsel
HEHF	Hanford Environmental Health Foundation
HP	Health Physics
IPM	Integrated Pest Management
KEH	ICF Kaiser Hanford Company
MSDS	Material Safety Data Sheet
NFM	Near Field Monitoring
OSHA	Occupational Safety and Health Administration/Act
OSS	Operations Support Services
PCO	Private Commercial Operators
PMM	Procurement and Materials Management
PNNL	Pacific Northwest National Laboratory
RC	Radiological Control
RCW	Revised Code of Washington
SOW	Statement of Work
VMO	Vegetation Management Operations
WHC	Westinghouse Hanford Company

KEY WORDS

ALARA
 Animal Control Operations
 Arthropods
 Commercial Pesticide Applicator / Operator
 Environmental Protection Agency
 Federal Insecticide, Fungicide and Rodenticide Act
 Integrated Pest Management
 Material Safety Data Sheet
 National Pest Control Association
 Nuisance Wildlife
 Pest
 Vegetation Management Operations
 Weeds

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1.0 INTRODUCTION

Because structural and landscape pests and the pesticides used to control them can pose significant problems for people, property, and the environment, it is the policy of Westinghouse Hanford Company to adopt and use Integrated Pest Management (IPM) methods and strategies to effectively control pests at Hanford Facilities.

1.1 Scope

This plan describes how IPM will be implemented at Hanford. It states policy, delineates roles and responsibilities, and describes objectives and available strategies.

Cooperation is paramount to the success of IPM. By working together Hanford contractors can improve the quality of the Hanford work environment by supporting the IPM strategies as presented in this plan.

1.2 Definitions

Pest

At the Hanford Site, pests are populations of living organisms (animals, plants, or microorganisms) that interfere with human use of Hanford Site facilities and properties.

Pest Control Industry Definitions of IPM

"IPM is a decision-making process that anticipates and prevents pest activity and infestation by combining several strategies to achieve long-term solutions. Components of IPM programs may include education, proper waste management, structural repair, maintenance, biological and mechanical control techniques, and pesticide application" (National Pest Control Association, 1994).

Environmental Protection Definition of IPM

"IPM is an effective environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interactions with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment. IPM programs take advantage of all pest management options possibly including, but not limited to, the judicious use of pesticides."

"Understanding pest needs is essential to implementing IPM effectively. Pests seek habitats that provide basic needs such as air, moisture, food, and shelter. Pest populations can be prevented or controlled by creating inhospitable environments by removing some of the basic elements pests need to survive, or by simply blocking their access into buildings. Pests may also be managed by other methods such as traps, vacuums, or pesticides. An understanding of what pests need in order to survive is essential before action is taken" (EPA 1993).

1.3 Purpose

The purpose of IPM is to:

- Reduce potential human health hazard or protect against a significant threat to public safety.
- Prevent loss of or damage to Hanford structures or properties.
- Prevent pests from spreading into the community and prevent plant or animal pest populations from spreading offsite.
- Improve the quality of life in the Hanford work place.

1.4 Selecting A Treatment Strategy

Basis

1. The management strategy is chosen based in part on the pest species and the potential threat to people, property, and the environment.
2. The full range of alternatives, including no action, will be considered.
3. Using IPM procedures and current, comprehensive information of the pest and its environment, practitioners (a) determine when to control pests and (b) select the best available pest control methods and or combination of methods, which may include mechanical, physical, chemical, cultural, or biological means.

Choosing Chemical Control

4. The practitioner will consider and, as appropriate, implement selected non-chemical pest management methods. Pesticide IPM options are selected when they provide the best pest control solution for specific pest problems.

NOTE: Cost or staffing considerations alone are not considered adequate justification for use of chemical control agents.

5. Pesticides for use on the Hanford Site are selected according to specific criteria pending technical reviews by a WHC Commercial Pesticide Applicator and an Industrial Hygiene Toxicologist.^a
6. The application of pesticide is subject to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S. Code 136 et seq.), Environmental Protection Agency regulations in 40 CFR, Occupational Safety and Health Administration regulations, U.S. Department of Energy Richland Operations Office (RL) orders, and Washington State and Company requirements (listed in Section 10.0).

1.5 Education

Hanford employees and pest management staff shall be educated about potential Hanford pest problems and the IPM policies and procedures to be used to achieve the desired pest management objectives. Educational materials may be disseminated using Site media, technical presentations, and other appropriate communication methods.

1.6 Maintaining Records

Records of pesticide use shall be maintained onsite for seven years by a Washington State licensed Commercial Pesticide Applicator (CPA) to meet Washington State regulatory requirements and site procedures. Pest surveillance data that documents the number of pests or other indicators of pest populations are maintained on pest investigation forms for two years to verify the need for treatments. All records must be current and accurate.

^a Following are criteria for selecting pesticide products for use at Hanford:

- Low mammalian toxicity
- Low applied solution concentration
- Labeled for the site and location where control is needed
- Labeled for target species
- Formulation provides minimum human contact
- Biodegradable (adequate residual but not hazardous residual)
- Non-carcinogenic
- Not likely to cause human hypersensitivity.

Record keeping must allow the organization to evaluate the results of IPM to determine if pest management objectives have been met. Keeping accurate records also allows better decision-making and more efficient procurement. Accurate records of inspecting, identifying, and monitoring activities show changes in the site environment (reduced availability of food, water, or shelter), physical changes (exclusion and repairs), pest population changes (increased or reduced numbers, older or younger pests), or changes in the amount of damage or property loss. Complete, accurate, and retrievable pest management records are maintained in the Animal Control Operations (ACO) office. These records include:

- Copies of the Hanford Site Pest Management Plan and supporting ACO Internal Procedures.
- Pesticide use records that comply with Washington State Standard WAC-16-228 (hard copy and computerized data base).
- Copies of the current EPA-registered label and the current Material Safety Data Sheet for each pesticide product inventoried by ACO.
- Appropriate pest investigation, inspection records, and reports (hard copy and computerized data base).
- Rodent control device records: rodenticide bait station and capture device logs (hard copy and computerized data base).
- The Nuisance Wildlife Control Permit data base documents the pest problem, location, method of control, number, and disposition of each wildlife species controlled by ACO.

1.7 Notifying Building Occupants

IPM ACO shall pre-notify management and building administrators of upcoming pesticide treatments. Building Administrators will be notified by telephone, followed by an electronic mail message. The Building Administrator must then notify building occupants (e.g., by posting the electronic mail message).

1.8 Purchasing and Storing Pesticides

The Hanford Contractor Industrial Hygiene Organization pre-approves all pesticides authorized for use on the Hanford Site. Purchases will be limited to the amount planned for use during the year. Pesticides will be stored and disposed of in accordance with pertinent EPA-registered label directions and Washington State, Company, and local requirements.

Pesticides are stored and transported in appropriate, secured sites or vehicles and are not accessible to unauthorized personnel.

1.9 Pesticide Operators

Only Washington State licensed Commercial Pesticide Operators (CPO) or Private Commercial Operators (PCO) supervised by a Washington State licensed Private or CPA may apply pesticides. License training shall include pesticide handling and safe use, regulations, and label precautions. CPAs, CPOs, and PCOs shall maintain current licenses through the Washington State-approved recertification process, which includes principles and practices of IPM.

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2.0 PEST MANAGEMENT ROLES

IPM concepts and strategies were originally developed in agriculture and were based on economic thresholds. The answers to complex questions have helped shape continually evolving IPM strategies and have broadened their application to include structural and commercial pest control.

In successful urban pest management systems, people cooperate in roles such as occupants, pest managers, or decision makers, gaining the information they need, giving the information that others need, and fulfilling specific responsibilities. These same requirements for success apply at Hanford. Functions and responsibilities for the Hanford IPM program are summarized in Table 2-1 and are detailed below.

2.1 Employees and Building Occupants

Site employees and building occupants are concerned with (1) the safety and effectiveness of the pest control methods used and (2) the possible adverse effects. They should be provided with information addressing these concerns and their role in the Site pest management program.

Sanitation is the occupant's most important contribution to IPM, and therefore is there responsibility. The success of pest control largely depends on whether or not occupants clean up food leftovers, lockers, work station paper and debris clutter, and perform proper maintenance. Deliberate feeding of wildlife is prohibited. Occupants may also be first to notice pests and should report evidence of pest activity to the Building Administrator or appropriate supervisor.

2.2 IPM Services Animal Control Operations

The ACO Team Mission is to foster a safe, productive work environment for Hanford Site employees by controlling pest species. ACO pest control services include control of arthropod pests, vermin, and nuisance wildlife species using IPM resolution processes.

ACO begins pest control with an inspection. Next ACO staff identify and monitor pest activity and evaluate problems. The qualified, licensed ACO staff implements pest control strategies, provides recommendations for improving the structural integrity of Hanford facilities, maintains relations with customers, and may provide employee education regarding pests and pest control.

2.3 IPM Services Vegetation Management Operations

The Vegetation Management Operations (VMO) Mission is to control vegetation to reduce the potential for spread of radionuclides through Hanford plant communities, to extend the life of hard surfaced Hanford properties, and to improve and maintain the aesthetics of Hanford landscapes.

Control efforts include vegetation survey inspections, identification and monitoring, and pre- and post-treatment assessments, and evaluations. The qualified, licensed VMO staff supervises the implementation of vegetation control strategies based on assessments of action thresholds. VMO maintains relations with customers and may provide employee education regarding vegetation control.

2.4 Safety and Industrial Hygiene

The Safety Department provides support for ACO Services including the approval of all chemical pest management products, consultation services for industrial hygiene issues, technical presentations to disseminate industrial safety and health information for customer education, coordination of ACO pesticide operator exposure monitoring activities, and assessments to ensure compliance with pertinent requirements, can conduct safety audits throughout ACO services. Industrial Hygiene assists with selecting engineered administration, personal protective equipment and exposure control methods.

2.5 Health Physics Radiological Control

The Health Physics (HP) Radiological Control (RC) organization provides radiation surveys of ACO vehicles, spray rigs, capture devices, and captured wildlife. HP RC also transports all radiologically contaminated wildlife captured by ACO to laboratories or appropriate disposal sites.

2.6 Hanford Environmental Health Foundation

The Hanford Environmental Health Foundation (HEHF) maintains a Site network of First Aid support stations, provides general diagnosis of work-related injuries and employee health care needs, and actively supports employee wellness programs. HEHF also conducts educational presentations to Hanford groups on preventive behavior and available health care involving personal encounters with Hanford hazardous pest species, and conducts field monitoring of ACO pesticide operators. HEHF administers the Hanford Material Safety Data Sheet number system.

2.7 Procurement and Materials Management

The Hanford Contractor's Procurement and Materials Management (PMM) Organization processes all Procurement Requisitions for pesticides authorized for use on the Hanford Site and directs all unauthorized requisitions back to the appropriate Private or Commercial Pesticide Applicator.

2.8 Near Field Monitoring Team

The Near Field Monitoring Team (NFM) provides consultation services and other administrative support to protect the Hanford environment from impacts associated with all aspects of Hanford Site occupation activities. NFM closely monitors radiation sources and impacts on protected biota and associated environs, and also makes recommendations for corrective actions to limit the migration of radioactive contamination via biotic (including pest) intrusion.

2.9 Facility Administration

Facility Administration coordinates administrative, engineering, and maintenance controls for Hanford facilities that impact pest management activities—every effort possible should be directed at implementing ACO's structural recommendations. These controls involve structural integrity of buildings and properties and management practices that implement administrative and maintenance policies.

2.10 Custodial Services

Custodial Services provides indoor sanitation support for Hanford buildings. This organization is a natural advocate in the pest management plan. Sanitation alone reduced rat populations by 50% at the Baltimore, Maryland row house district during the 1950's—a fact that testifies to the importance of sanitation as a pest control strategy.

2.11 Operations Support Services

Crafts: Operations Support Services (OSS) provides the primary support role through the Job Control System for implementing both Facility Administration and Pest Control recommendations to improve the integrity of Hanford facilities.

Teamsters: OSS provides qualified, licensed CPO who are responsible for implementing VMO recommendations.

2.12 Waste Management

Waste Management provides the primary outdoor sanitation support for Hanford properties. The sanitation program provides prime IPM support for controlling insects, rodent pests, and nuisance wildlife by reducing components of their survival requirements.

2.13 Regulatory Analysis Environmental Policy

Regulatory Analysis monitors state and Federal requirements and standards that regulate Hanford Site activities.

2.14 Office of General Counsel

The Office of General Counsel (GC) provides legal support for IPM Services Pest Management operations including GC, contracts administration, and insurance and bonding for the WHC CPA license.

Table 2-1. Pest Management Roles. (Page 1 of 2)

Group	Role
Westinghouse Hanford Company	
Animal Control Operations	Provide pest management services (inspection, monitoring, assessment, identification, evaluation, and controls). Perform public relations (customer communications, presentations, education, and treatment pre-notifications).
Vegetation Management Operations Noxious Weed Program	Control vegetation; re-vegetate both radiation and non-radiation areas. Manage noxious weeds.
Facilities Management Department	Perform engineering and administrative controls, maintenance, management, and sanitation practices.
Industrial Hygiene and Safety	Site industrial hygiene and safety policy development and enforcement support.
Environmental Engineering Studies Near Field Monitoring	Site environmental protection support, biota contamination trends, and assessment of problem areas.
Regulatory Support	Environmental policy, standards, and requirements support.
Office of General Council	Operations and contracts administration legal support.
Pacific Northwest National Laboratory (Pacific Northwest)	
Health and Safety Section	Develop and enforce Pacific Northwest industrial hygiene and safety policy.
Facilities Management Department	Maintain Pacific Northwest engineering and administrative controls; maintain Pacific Northwest facilities and sanitation.

Table 2-1. Pest Management Roles (Page 2 of 2)

Group	Role
ICF Kaiser Hanford	
Industrial Safety and Health Division	Develop and enforce industrial hygiene and safety policy.
Maintenance (Custodial Services, Crafts, Waste Management)	Maintain site sanitation and provide site maintenance and repair.
ICF KEH Facilities Management Department	Maintain engineering and administrative controls of maintenance and sanitation practices for WHC and ICF KEH facilities.
Bechtel Hanford, Inc.	
Support Services	Maintain engineering and administrative controls; maintain sanitation practices for BHI facilities.
Operations	Implement site sanitation. Perform site maintenance and repair.
Industrial Safety and Health	Develop and enforce industrial hygiene and safety policy.
Inactive Facilities Surveillance and Maintenance	Perform deactivation, decontamination, and demolition.
All Contractor Employees	
All Contractor Employees	Provide input regarding sanitation; maintain good housekeeping.

3.0 PEST MANAGEMENT OBJECTIVES FOR HANFORD BUILDINGS AND PROPERTIES

The following pest management objectives reflect Hanford's as low as reasonably achievable Safety goals and represent the goal of providing a work environment that is as free from pest-related hazards as practically possible:

- Manage pests that may occur in the work place to prevent interference with work activities.
- Eliminate pest-related injury to employees and building occupants.
- Preserve the integrity of Hanford buildings and properties as per IPM decision process.
- Provide the safest, pest-free work areas practically possible.

4.0 INSPECTING, IDENTIFYING, AND MONITORING

The Hanford IPM program centers around a cycle beginning with inspection of occupied buildings and work places, followed by identification of pests, monitoring, evaluating, and choosing the appropriate control strategies based on action threshold principles. Routine inspection and accurate identification of pests are vital steps in this process to ensure that control methods will be effective. Once the pest and the source of its activity have been identified, habitat modifications—primarily exclusion, repair, and sanitation efforts—may greatly reduce pest survival. Monitoring includes inspecting areas for evidence of pests, pest entry points, food, water, and harborage sites; and estimating pest population levels. The information gained through monitoring is evaluated to determine whether the action threshold has been exceeded and what prevention measures can be taken.

Facility deficiencies are provided to Facility Administration by post-inspection reports delivered electronically. As a service organization, ACO's role does not include enforcement. However, ACO provides the customer with periodic status updates of implemented recommendations resulting from subsequent pest control services requests and inspections of the facility.

5.0 SETTING ACTION THRESHOLDS

An action threshold is the level of pest activity at which action is initiated. The action threshold is based on the sensitivities of the occupants and other work place employees, pest management objectives, and other variables. It often reflects how many pests can be

tolerated. The action threshold is established by the pest manager and the occupants and reflects the pest management objectives for the Site. Radiological standards are delineated in WHC-CM-7-5. The mere presence of certain nuisance pests does not automatically result in action. Table 5-1 details contributing factors that influence action thresholds for primary pest categories.

When pest populations exceed the pre-established action thresholds, action shall be taken. Precise recommendations or actions to achieve specific results are an essential part of an IPM program. Specific recommendations, including an explanation of the benefits, should be based on all available data obtained through inspection, identification, and monitoring.

Table 5-1. Pest Action Thresholds.

Pest	Setting	Variables	Thresholds	Action
Weeds	Rad	Levels	-	Physical removal, cultural, and herbicide
Weeds	Non-rad	Soil, nutrients	-	Physical removal, cultural, biological, and herbicide
Arthropod predators	Occupied buildings	Insects, light, moisture, food, harborage, sanitation	-	Physical removal, structural integrity recommendations, cultural practices, sanitation, insecticide
Nuisance arthropods (e.g., ants)	Occupied buildings	Moisture, food, harborage, sanitation	-	Physical removal, structural integrity, recommendations, sanitation, insecticide
Nuisance wildlife (building interiors)	Occupied	Access, Survival triangle*, sanitation	-	Capture survey, relocate access: structural integrity, IPM recommendations, sanitation, survival triangle
Nuisance wildlife (exterior)	Hanford Site	Personnel interaction potential	-	Haze, capture survey, relocate, access, survival triangle, IPM recommendations, sanitation

* Action Thresholds are individually assessed with objective and subjective criteria for each pest, location, hazard, situation, and unique set of extenuating circumstances pertaining to impacts on personnel health, moral, activities and property use.

* Arthropods include insects and arachnids.

* Survival Triangle includes food, shelter, and water.

6.0 APPLYING IPM STRATEGIES

Appropriate response to animal pests, (i.e., arthropods, vermin, and nuisance wildlife) varies depending on the potential for impacting worker health and safety and site properties. Pest prevention measures can be incorporated into existing structures. Such preventive measures reduce the need for pesticide applications and include sanitation and structural repair, and implementation of physical and mechanical controls such as screens, traps, weed removal, and air doors. The sections that follow discuss IPM strategies for indoor and outdoor locations.

6.1 IPM Strategies for Indoor Sites

Typical indoor pests include mice, rats, cockroaches, ants, flies, wasps, hornets, yellow jackets, spiders, microorganisms, termites, and other wood-destroying organisms; wasps, hornets, yellow jackets, and spiders are considered pests even though they are beneficial as predators.

6.1.1 Entryway

Entryways include doorways, overhead doors, windows, holes in exterior walls, openings around pipes, electrical fixtures, or ducts. Control entries are as follows.

- Keep doors shut when not in use.
- Place weather stripping on doors.
- Caulk and seal openings in walls.
- Install or repair screens.
- Install air curtains.
- Keep vegetation, shrubs, and wood mulch at least 1 ft away from structures.

6.1.2 Occupied Facilities

Occupied facilities include administrative offices, work stations, shops, control rooms, lavatories, laboratories, and hallways.

6.1.3 Food Preparation and Eating Areas

Food preparation and eating areas include lunch rooms and snack and vending machine rooms.

- Store food and waste in containers that are inaccessible to pests. Containers must have tight lids and be made of plastic, glass, or metal. Waste should be removed at the end of each day (including empty pop cans).
- Place screens on vents, windows, and floor drains to prevent invading insect and vermin pests from using unscreened ducts or vents as pathways.
- Create inhospitable living conditions for pests by reducing available survival requirements:
 - food and water—remove food debris, sweep up all crumbs, fix dripping faucets and leaks, and dry out wet areas.
 - harborage—reduce material storage around building perimeters.
- Improve cleaning practices, including promptly cleaning food preparation equipment after each use and removing grease accumulation from vents, ovens, and stoves. Use caulk or paint to seal cracks and crevices.
- Call WHC ACO at 376-PEST to have rodents removed from the work place. ACO uses mechanical capture devices and glue traps to capture rodents indoors. These devices are serviced monthly and upon customer request (by calling when rodents are captured).

6.1.4 Rooms and Areas with Extensive Plumbing

This category includes restrooms, rooms with sinks, change rooms, locker rooms, laboratories, control rooms, and process buildings.

- Promptly repair leaks and correct other plumbing problems to deny pest access to water.
- Routinely clean floor drains, strainers, and grates. Seal pipe chases.
- Keep areas dry. Avoid conditions that allow formation of condensation. Areas that never dry out are conducive to molds and fungi; it may be necessary to increase room ventilation.

- Store paper products or cardboard boxes away from moist areas and direct contact with the floor or walls, and monitor pest activity.
- Store and consume food and beverages in designated areas.

6.1.5 Maintenance Areas

This category includes boiler rooms, mechanical rooms, janitorial-housekeeping areas, shops, and warehouses.

- After use, promptly clean mops and mop buckets and hang mops vertically on rack above floor drain.
- Allow eating only in designated eating areas.
- Clean trash cans regularly; use plastic liners in trash cans and use secure lids.
- Keep areas clean and as dry as possible, and remove debris.

6.2 IPM Strategies for Outdoor Sites

Typical outdoor pests include mice, pocket gophers and other rodents, pigeons, starlings and other pest birds, perimeter invading arthropods, and turf pests such as broad-leaf and grassy weeds, insects such as beetle grubs or sod webworms, and turf disease such as brown patch. Ornamental plant pests include plant diseases and insects such as thrips, aphids, Japanese beetles, and bag worms.

6.2. Building Perimeters, Parking Lots, Engineered Fields, Rights-of-Way, Loading Docks, Refuse Dumpsters, and Abandon or Infrequently Used Buildings

- Regularly clean trash containers and gutters, and remove all waste, especially food and paper debris.
- Secure lids on trash containers.
- Repair cracks in pavement and sidewalks.
- Provide adequate drainage away from the structure and on the grounds.
- Store material away from building exteriors, and maintain at least a 1-ft zone around building perimeters that is free of vegetation and cellulose materials.

- Seal holes in building eaves, and exteriors.
- Install tight-fitting door sweeps on all exterior doors, and require that exterior doors be kept closed when not in use.

6.2.2 Turf, Ornamental Shrubs, Trees, and Engineered Areas

- WHC Vegetation Management Operations (VMO) can provide assistance with assistance with best vegetation management practices for lawns, landscaped areas, engineered revegetated, and bare ground areas; call 373-7480. VMO can correctly identify the suspect pests, recommend proper control and assist with implementing those controls as appropriate.
- VMO specializes in selecting replacement plant material from among the many disease resistant types being developed by plant breeders including plant types appropriate for the Hanford Site.

6.3 Applying Pesticides Judiciously

Although many pesticides are currently available for use against urban and structural pests, ACO selects and uses only pesticides approved for use on the Hanford Site. Only EPA registered pesticides that are least toxic and most effective and that reflect efficient technique and material use are applied at Hanford. ACO applicators are Washington State licensed Commercial Pesticide Operators who are trained to apply pesticide materials to maximize efficiency and minimize hazard and exposure to non-target species. In areas where occupants may be exposed, pesticides are applied only when facility occupants are not present.

The following ACO pest management strategies help minimize exposure to people or non-target species when pesticide is being considered for and used to control pests.

- Read and follow label instructions.
- Choose a pesticide that is labeled for the specific site, intended for the pest you are trying to control, and as target-specific as possible (rather than broad spectrum).
- Pre-notify personnel in occupied facilities and other appropriate organizations and personnel of upcoming pesticide applications by contacting the building administrator via electronic mail, and require posting of the message as a prerequisite for treatment.
- Use the optimum method of application when pesticide treatments are required, (e.g., spot-treatment of only the obviously infested areas).

- Limit the use of sprays, foggers, or volatile formulations. Instead use bait and crack and crevice application when possible (look for specific crack and crevice label instructions). These treatments maximize pest exposure to the pesticide while minimizing occupant exposure.
- Place all rodenticides either in restricted access locations not accessible to people and non-target species or in tamper-resistant bait boxes. Securely lock or fasten shut the lids of all bait boxes, and secure the bait box to prevent unauthorized relocation. Place bait only in the baffle-protected feeding chamber of the box.
- Apply only when occupants are not present or in areas where they will not be exposed to the material applied. Communicate appropriate re-entry time to the customer, and be aware that some residues can remain long after application.
- Use proper protective clothing or equipment when applying pesticides.
- Properly ventilate areas before re-entry.
- Have copies of current pesticide labels and Material Safety Data Sheets (MSDS) easily accessible.

6.4 Storing Pesticides

All ACO pesticides are stored in locations and service vehicles that meet Washington State Standard WAC 16-228. This includes restricting access by unauthorized personnel; posting notices in buildings; using proper containers and maintaining proper ventilation; controlling temperatures and spills; providing secondary containment, fire control, flood control, and inventory control; and segregating pesticides appropriately.

7.0 EVALUATING RESULTS

Effectiveness of the Hanford IPM Program is evaluated in terms of radiological concerns, overall success, and cost.

7.1 Radiological Concern Evaluations

The ACO mission is primarily driven by Occupational Safety and Health Administration/Act and Department of Energy industrial hygiene and sanitation requirements. However, ACO works closely with the Health Physics Radiological Control and Environmental Engineering Studies Near Field Monitoring organizations to provide wildlife control in support of

radiological concerns involving wildlife species.

7.2 ACO Services Quality Review Process

At the end of each fiscal year, ACO surveys prime customers. This survey includes a summary of the services provided for the customer during the fiscal year and a quality review survey form. The survey form measures ACO performance in the following service categories: products used, staff response skills, service effectiveness, efficiency, and cost controls. The responses to this survey are reviewed and used to enhance customer communications and improve the quality of ACO services.

7.3 Evaluating the Costs

Determining whether an IPM program raises or lowers pest management costs depends in part on the nature of the current housekeeping, maintenance, and pest management strategies. Cost also depends on whether the IPM program will be provided using in-house services or contracted vendor services or both. Careful planning and consideration go into the IPM program to ensure that program resources and budgetary framework are sufficient to carry the projected IPM program goals.

7.3.1 Potential Added Costs

Initiating an IPM program may require additional resources to implement repairs and maintenance activities to prevent pest entry and to eliminate sources of shelter, food, and moisture. Examples of these one-time expenses that may result in future budgetary savings include:

- Improving waste management by moving trash or garbage containers away from occupied buildings to reduce the opportunity for pest invasion. This cost is a one-time expense that will result in fewer pest problems and reduce the need for other pest control procedures.
- Installing physical barriers such as air curtains over the outside entrances to lunch rooms and designated eating areas to reduce flying insect problems. This is also a one-time cost and results in fewer flying insect problems and subsequent savings.
- Expediting structural maintenance to correct problems such as leaky pipes. This effort reduces future maintenance problems, prevents pest problems, and saves money in the long term.

- Training and/or certifying staff in IPM. The amount of information necessary to implement IPM is greater than that required for conventional pest control. Consequently, training or certifying staff in IPM will probably increase costs.
- Re-landscaping the areas adjacent to buildings to discourage pests.

In the long term, these repair and maintenance activities will reduce overall costs of the pest control operation, as well as other maintenance and operating costs. Whether these costs are actually budgeted as a pest control expense or under some other budgetary category depends on the budgetary format of the plan. Organizations with active preventive maintenance programs should be able to absorb these activities within their current budgets.

8.0 SOURCE OF SERVICES

An IPM program is successfully implemented by WHC in-house ACO pest management specialists in conjunction with selected services procured from off-Site vendors. The combination of in-house and procured services best meets the needs and capabilities of the Hanford Site. This approach has advantages and disadvantages. The WHC ACO evaluates and determines the best approach for unique circumstances at the Hanford Site. Regardless of who provides the service, it is imperative that all pest management personnel be trained to:

- Understand the principles of IPM.
- Identify pests and associated problems or damage.
- Monitor infestation levels and keep retrievable records.
- Know cultural or alternative methods.
- Know recommended methods of judicious pesticide application.
- Know the hazards of pesticides and the safety precautions to be taken.
- Know the pesticide label's precautionary statement(s) pertaining to exposure to humans or animals.

8.1 "In-house" Services

One of the most important tasks for an in-house program is training staff to function within

an IPM context. The Washington State University Cooperative Extension Services provide annual recertification training for Washington State licensed pesticide operators and has the expertise to meet most IPM training needs. Site-specific training materials that are not already available can be developed by ACO specialists.

8.2 Procurement

As the IPM program progresses, predictable events and pest control needs will be identified. Close consultation with the pest management specialist will result in informed decisions on purchases.

Although some non-pesticide products such as traps can be purchased in bulk now to reduce purchases in future years, few savings can be realized by purchasing pesticides in bulk. It is best to keep no more than a 90-day pesticide inventory to ensure product freshness and to minimize storage of pesticide, "hazardous materials". Pest managers should be able to anticipate needs to fit a 90-day buying schedule.

8.3 Procured Services

The procurement of off-Site pest control services may increase costs but eliminate the need to hire and train personnel and store pesticides. The pest management services procurement should specify the use of IPM principles and practices in meeting pest management objectives, and should include IPM specifications. The procurement statement of work (SOW) should be written to provide expected results. Pest management objectives specific to the Site should be jointly developed, agreed upon, and written into the SOW. Only those work practices and methods already in effect on Site as per this IPM will be allowed. Only pesticide products authorized for use on the Hanford Site are allowed under the procurement. The authorization process reflects special health concern consideration for those individuals with allergies or other special needs.

9.0 CONCLUSION

This Integrated Pest Management Plan provides the basic structure and strategies by which IPM principles are used to control pests on the Hanford Site. Contractor cooperative support is imperative to maximize the potential for the Plan as specified herein.

10.0 REFERENCES

10.1 Federal Standards

29 CFR 1910.106-159, "Occupational Safety and Health Standards."

EPA, 1993, Office of Pesticide Programs, Specification EPA-735-F-93-012.

Federal Insecticide, Fungicide and Rodenticide Act of 1975, 7 USC 136 as amended May, 1985.

Federal Noxious Weed Act, P.L. 93-629.

General Services Administration, 1993, Public Buildings Services, Specification No. BM-5-1.

10.2 Industry Standards

National Pest Control Association, 1994, National Pest Control Association Bulletin,
"Integrated Pest Management For Your Home."

10.3 U.S. Department of Energy Orders

DOE RLIP 5480.10, Part D, "Sanitation Requirements."

DOE RLIP Order 5480.4C, "Environmental Protection, Safety, and Health Standards for RL."

DOE-RL Order 4300.1A, "Real Estate Management."

10.4 Washington State Standards

Washington State Department of Agriculture Order No. 1538.

RCW 15.58, "Washington Pesticide Control Act", Revised Code of Washington, as amended.

RCW 17.21, "Washington Pesticide Application Act", Revised Code of Washington, as amended.

RCWA 77.12.320, Revised Code of Washington, Annotated.

RCWA 77.16.170, Revised Code of Washington, Annotated.

WAC 16-228, "Rules Relating to General Pesticide Use", Washington Administrative Code, as amended.

WAC 232-12-086-241, "Department of Wildlife", Washington Administrative Code, as amended.

10.5 Applicable Westinghouse Hanford Company Reference Documents

WHC-CM-1-3, Management Requirements and Procedures, MRP 5.14, "Investigation and Reporting of Health, Safety or Programmatic Events and Unusual Occurrences" and "Impact Levels."

WHC-CM-1-10, Safety Manual.

WHC-CM-1-11, Industrial Hygiene Manual.

WHC-CM-4-40, Industrial Hygiene Manual.

WHC-CM-7-5, Environmental Compliance Manual.

WHC-CM-7-7, Environmental Investigation and Site Characterization Manual, EII 1.6, "QA Record Processing."

HSCRM-1, Hanford Site Radiological Control Manual.

APPENDIX A. IPM Plan Cover Letter to DOE-RL

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
R. F. Giddings	W. A. Rutherford, RL	9550768

Subject: HANFORD SITE INTEGRATED PEST MANAGEMENT PLAN

INTERNAL DISTRIBUTION

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Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

February 8, 1995

9550768

Mr. W. A. Rutherford, Director
Site Infrastructure Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Rutherford:

HANFORD SITE INTEGRATED PEST MANAGEMENT PLAN

The attached Integrated Pest Management (IPM) Plan provides the basic principles and strategies by which the IPM decision-making process is used to control pests on the Hanford Site. The Westinghouse Hanford Company Hanford Technical Services Integrated Pest Management Services Group provides these services for the site.

If you have any questions concerning details of the plan, please call Ray F. Giddings at 376-PEST (7378) or Clayton L. Looney at 376-6523 of my staff.

Very truly yours,

M. R. Adams, Manager
Hanford Technical Services
Strategic Affairs and Technical Support

slh

Attachment

RL - M. J. Elsen
L. G. Musen
N. G. Thomas
A. H. Wirkkala (w/o attachment)

BHI - M. C. Hughes
J. F. Nemec
J. E. Tarpinian

ICF-KH - M. P. Berglund
H. L. Budweg
S. E. Dieterle

PNL - P. L. Williams
P. A. Wright

APPENDIX B. IPM Plan Authorization Letter from DOE-RL

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author

W. A. Rutherford/RL

Addressee

President/WHC

Correspondence

Incoming: 950569

WHC CC Recd: 12/07/95 am



Subject: HANFORD SITE INTEGRATED PEST MANAGEMENT PLAN

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Tony DiLiberto



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Richland Operations Office
P.O. Box 550
Richland, Washington 99352

9505090

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95-OMT-068

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Contractors, Richland, Washington

President
Hanford Environmental Health Foundation

Director
Pacific Northwest National Laboratory

President
Westinghouse Hanford Company

Addressees:

HANFORD SITE INTEGRATED PEST MANAGEMENT PLAN

In order to assure that pest management on the Hanford Site is accomplished in accordance with the Hanford Site Integrated Pest Management Plan, all pest control activities (including both animal and plant pest control) must be coordinated through and approved by the WHC Hanford Technical Services Integrated Pest Management Services Group. They may be contacted at 376-7378.

This policy is established to replace the mandatory requirements previously identified in the Hanford Site Services Handbook. If you have any questions or comments, please feel free to contact me or Mr. Nelson Thomas, of my staff, at 376-9624.

Sincerely,

W. A. Rutherford, Director
Site Infrastructure Division

SID:NGT

cc: R. E. Tiller, ICF KH

DISTRIBUTION SHEET

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